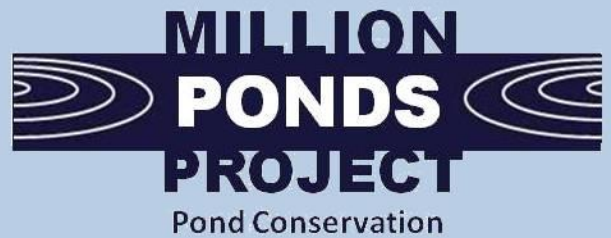


# Creating ponds for Small Fleabane *Pulicaria vulgaris*



A 50-YEAR PROJECT TO CREATE A NETWORK OF CLEAN WATER PONDS FOR FRESHWATER WILDLIFE

## 1. Why create ponds for Small Fleabane?

Small Fleabane *Pulicaria vulgaris* (Figure 1) is an annual plant which has many branched reddish stems and small (6-12mm) yellow flower heads. It is restricted to seasonally-flooded ponds, and more rarely ditch sides and permanent pond margins, on mildly acidic grasslands within heavily grazed commons and village greens in southern England (Figure 2).

The species was once widespread, but has undergone a catastrophic decline over the past 100 years and its only remaining stronghold is now a small number of localities within the New Forest. Whilst most losses occurred prior to 1950, it became extinct in its last Wiltshire location in the 1970s, and may now have disappeared from North Hampshire and Surrey. It is classified as Critically Endangered in the UK and protected under Sch. 8 of the Wildlife and Countryside Act.



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**Figure 1.** Small Fleabane in typically sparse habitat maintained by the action of grazing ponies

## 2. Habitat requirements

Small Fleabane is **unable to compete with other plants**, particularly as a seedling, so it needs very short grasslands. The species is unpalatable to grazing stock and favours areas with a long tradition of continuous year-round grazing, notably commons and village greens, and is often left when other vegetation has been nibbled short.

In addition to the **demand for very short turf**, the key to the survival of this species is a **high level of winter poaching (by cattle or ponies)** or rutting by vehicles. Massive population 'explosions' in the New Forest have occurred following heavy poaching by commoners stock congregating on the edge of commoners holdings.

The **dependence of Small Fleabane on traditional land management**, i.e. grazing by commoner's livestock, has been the root cause of its decline, because these practices have largely ceased. The New Forest is the only area in the UK where this practice continues. Even here it has disappeared from parts of the Forest when individual commoners have stopped turning out stock.

### Key messages

- Create ponds and reinstate grazing to sites with historical records for Small Fleabane.
- Locate ponds within neutral to mildly acidic grasslands. Many of the UK's rarest plants are associated with the winter flooded hollows in these habitats.
- Create a complex of small shallow ponds and hollows, less than 30cm deep across their entire length.
- Maintain a very short sward with heavy grazing using cattle or ponies. Small Fleabane also needs heavy poaching, particularly in winter, to provide bare ground.
- Remove invasive non-native species as soon as they occur. Once established they are very difficult to remove effectively.



**Figure 2.** Current distribution of Small Fleabane in the UK

Data provided by the BSBI

### 3. Pond creation for Small Fleabane

Creating ponds for Small Fleabane is easy but the management of land following pond creation is vital to provide the correct habitat for it to survive. In the New Forest, support for the pastoral economy is essential to maintain habitat for Small Fleabane and bring grazing back to areas where it has declined.

Outside of the New Forest, reinstating grazing management and **creating or reinstating ponds at old sites** may help to bring back Small Fleabane, as seeds can remain viable for decades waiting for the right conditions to occur. Recently, approximately 500,000 plants appeared at a heavily poached site in the New Forest, at a location previously unknown to botanists, probably from long-buried seed

#### *Locating ponds and finding a clean water source*

- **Grasslands** suitable for Small Fleabane will be located on sand and gravel geology, particularly where nutrient enrichment from grazing animals (cattle, horses and ponies) results in a fairly neutral pH. Other than the actions of grazing animals, these habitats should be free from agricultural improvements such as artificial fertiliser or ploughing. The grasslands themselves may be species poor but the seasonally flooded hollows in this habitat will support many nationally important species including Mudwort *Limosella aquatica*, Pennyroyal *Mentha pulegium*, Hampshire Purslane *Ludwigia palustris* and Small Fleabane *Pulicaria vulgaris*.
- **Ponds for Small Fleabane will be temporary and fed by direct rainfall.** The impermeable layer to hold this water may be due to clay deposits in otherwise freely draining soils or the poaching action of grazing animals causing compaction. These conditions have been created historically where commoner's livestock congregated on the edges of villages and small holdings (Figure 3). Ponds were dug to provide water for the stock but compaction by vehicles and stock also created many small pools along regularly used trackways. This often makes it easy to create ponds, as they are simple in design and require little planning (see section on pond shape, size and depth).
- **Create ponds to maximise the amount of poaching.** Small Fleabane is a poor competitor and needs very short vegetation and a lot of bare ground to germinate successfully. Year-round grazing by cattle or ponies is essential, but it is also important to consider grazing densities (see section on management for Small Fleabane). Locating ponds strategically in pinch-points e.g. by gateways, can be used to increase the level of grazing pressure (Figure 4).
- **Create a complex of small shallow ponds** as these will be grazed more effectively across the entire pond basin than larger ponds (Figure 5). Small Fleabane will move around a site to germinate where conditions are favourable. Increasing the number of ponds will increase the stability of the population by increasing the availability of suitable habitat. However the situation is complicated - in areas with existing populations the creation of new ponds may dilute grazing pressure and be detrimental to the population. Seek advice before pond creation work begins.



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**Figure 3.** A Small Fleabane pond showing the bare poached mud and short turf created by the action of commoners livestock on a New Forest lawn and seasonal inundation of the same pond in winter.



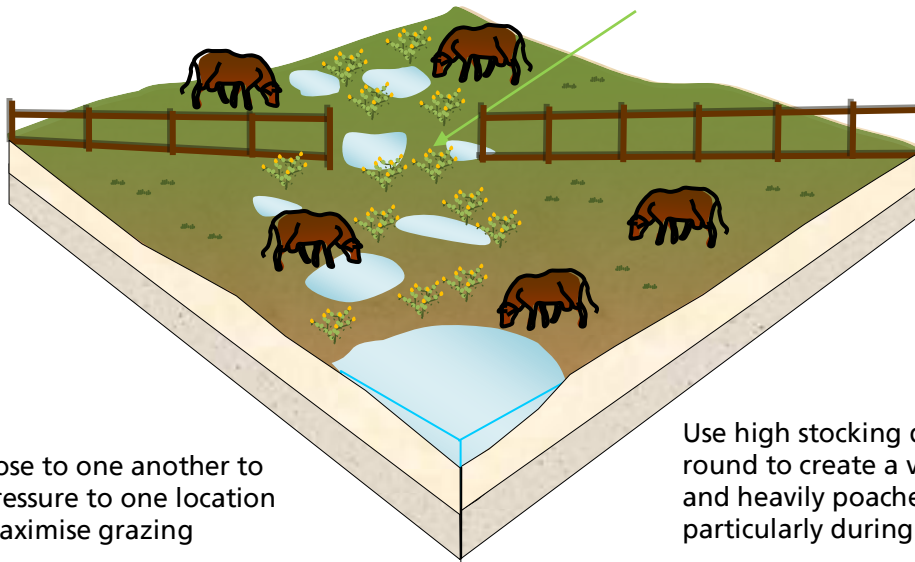
### Pond shape, depth and size

It is important to take a flexible approach to the creation of ponds for Small Fleabane. If the pond has a very gentle profile and fluctuating water levels it will be suitable. Creating small shallow temporary pools is as easy as digging a 1m<sup>2</sup> shallow scrape. If the pond never holds water nothing has been lost as small depressions will add to the micro-topography of the site.

#### Figure 4: Create a complex of ponds and select pond location to maximise grazing pressure

A complex of ponds will strengthen the population allowing Small Fleabane to move between ponds as conditions become suitable – but the complex needs to have suitably high grazing pressure in order to create enough disturbance for Small Fleabane to germinate.

Small water bodies are more easily poached particularly if they are positioned in areas with heavy traffic – e.g. trackways and gates.



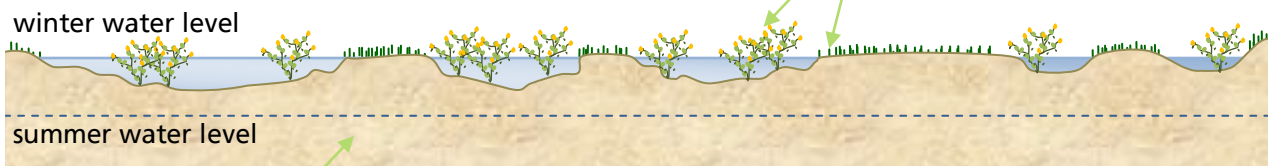
Locate ponds close to one another to draw grazing pressure to one location on the site to maximise grazing pressure.

Use high stocking densities year-round to create a very short turf and heavily poached pond basins particularly during winter months.

#### Figure 5: Pond size and depth for Small Fleabane

Create a complex of ponds between 1-5m in width, with a maximum depth of 30cm.

Short grazed turf (<5cm) and heavily poached ponds are required for Small Fleabane to germinate.



No standing water in summer, pond base often dry and cracked.

Individual ruts in trackways can be small but collectively should cover an area of at least 5m to maximise the area of suitable habitat for Small Fleabane.

## 4. Management for Small Fleabane

Seasonally-flooded hollows in heavily and continuously grazed grassland are key to the requirements of this species. These habitats are often overlooked and easily lost when trackways are “improved” to get rid of standing water. To manage sites for Small Fleabane the key is **DON'T** be too tidy and increase rather than reduce the number of hollows.

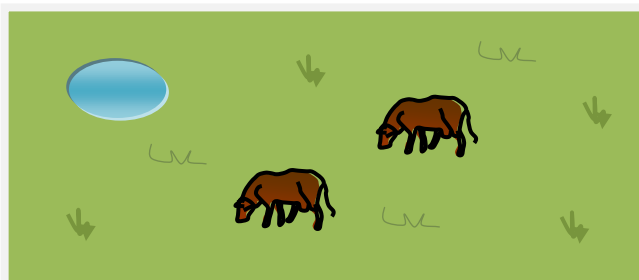
### *Continual, year-round, heavy grazing by cattle or ponies*

- Grazing should create a turf typically less than c. 5cm tall. Small Fleabane is unpalatable to grazing stock and whilst a few plants may be inadvertently pulled, the majority will remain unharmed. Enrichment as a result of animal dung may also be beneficial as long as excess vegetation is removed by grazing.
- Heavy disturbance to the soil through either winter poaching or through heavy and repeated winter rutting by vehicles creates bare patches. However, the grazing option is really the only sustainable method for maintaining the species long-term, and vehicular disturbance should only be considered where grazing is not possible.

### *Establishing the correct level of grazing for Small Fleabane*

The grazing pressure upon a pond depends on (i) the number/area of waterbodies and (ii) the head of stock *in the grazing unit as a whole* (Figure 6). This means that - as the number of stock increases, grazing pressure per pond will increase, this is not related to the size of the field. In addition, as the number of ponds in a field increases, grazing pressure per pond will decrease. If the ponds in a complex are clustered together they will attract grazing animals and the grazing pressure will increase. If the ponds are widely spaced, grazing will be divided between ponds and grazing pressure will decrease.

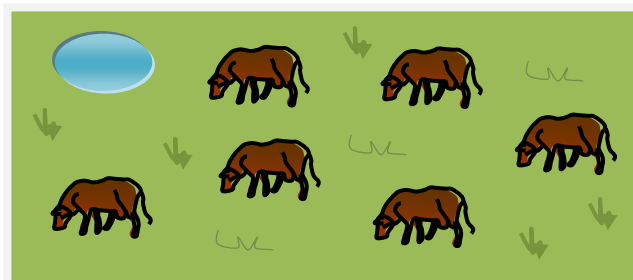
**Figure 6: Use a combination of stocking density, pond number and pond location to establish the correct grazing pressure for Small Fleabane**



#### Low intensity

Few cattle/ponies per pond - sward height too tall and not enough poaching.

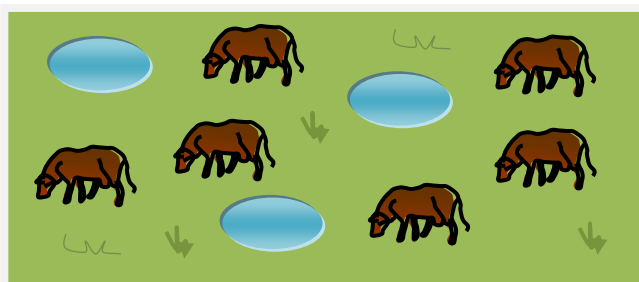
**NO GOOD FOR SMALL FLEABANE**



#### High intensity

Many livestock per pond – but the pond must be shallow.

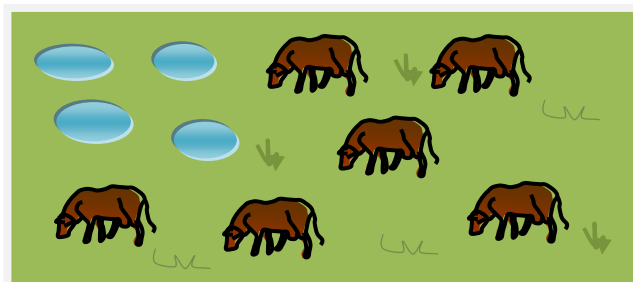
**IDEAL FOR SMALL FLEABANE**



#### Moderate intensity

Many livestock, but more widely dispersed ponds – lower grazing intensity per pond.

**NO GOOD FOR SMALL FLEABANE**



#### Very high intensity

Many livestock per pond, many small shallow ponds concentrated in one small area.

**OPTIMAL CONDITIONS FOR SMALL FLEABANE**

## 5. Threats to Small Fleabane

Small Fleabane continues to be threatened by loss of winter stock grazing (Figure 7) and by the continued removal of small scale pools (e.g. filling in path and track ruts), as part of the trend towards “tidying up” the countryside.

- **Scrub encroachment is a threat** to Small Fleabane as it is intolerant of shade. Grazing levels should be sufficient to limit its spread, but some clearance work may be required if the site has become overgrown.
- **Invasive species** pose a significant threat to species such as Small Fleabane because they can quickly take over bare ground habitat and outcompete vulnerable plants. Sites should be monitored and invasive species removed as soon as they appear because once established they are difficult and costly to control.



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**Figure 7.** The pastoral economy of traditional grazed commonlands needs recognition and support as it is essential to the continued survival of Small Fleabane and other rare plants and invertebrates.

## 6. Further reading

Chatters, C. (1991) The status of *Pulicaria vulgaris* Gaertner in Britain in 1990. *Watsonia*. 18: 405-406.

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**For further information about the Million Ponds Project and to consult other factsheets in the Pond Creation Toolkit, please visit [www.pondconservation.org.uk/millionponds](http://www.pondconservation.org.uk/millionponds) or email enquiries to [info@pondconservation.org.uk](mailto:info@pondconservation.org.uk)**